June 28, 1932. W. BOWKER ET AL 1,864,794

DECORATIVE MATERIAL

Filed June 26, 1928

Fig. 1.

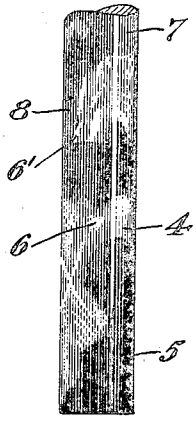


Fig. 2.

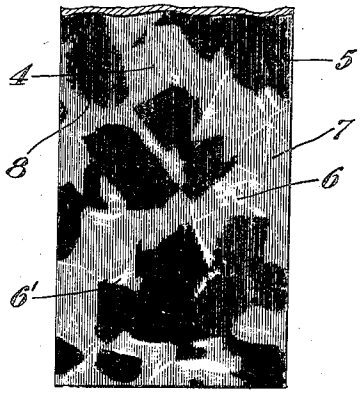
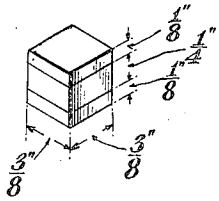


Fig. 3.



Inventor
William Bowker,
James F. Walsh

By their Attorneys
Edwards, Sager & Bauer

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UNITED STATES PATENT OFFICE

WILLIAM BOWKER, OF NEWARK, AND JAMES F. WALSH, OF EAST ORANGE, NEW JERSEY, ASSIGNORS TO CELLULOID CORPORATION, A CORPORATION OF NEW JERSEY

DECORATIVE MATERIAL

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The object of our invention is to provide a decorative material combining a lustrous reflecting sheen effect with a relatively opaque coloring by means of an intermediate semitranslucent medium carrying the sheen in highly variable relation to the opaque material.

Where it is attempted to intermix brilliant material with opaque pigments, we find that the pigment interferes with the proper lighting of the reflecting material, and also tends to absorb the reflected rays so as to give a generally dull and flatly unattractive effect. It is our discovery that a highly brilliant and contrasting appearance may be attained in the material combining the sheen and opaque colorings without direct intermixture but by developing the sheen irregularly in a semitranslucent medium which in turn is interspersed in irregular intermixture with the opaque material.

Among the objects of our invention is to produce an article of this character which shall be durable in use, and of a particularly attractive appearance exhibiting a mottled or partly pearly effect. For example pyroxylin plastic or other equivalent plastic material of a transparent, translucent or opaque type are produced in which are incorporated in a promiscuous manner irregularly shaped pieces of thermoplastic containing sheen material in imitation of pearl. We attain such a configuration by means which are unique and of moderate cost in that we employ relatively cheap ingredients and simple manipulation by a highly efficient process.

Figures 1 and 2 are cylindrical and flat representations respectively of finely surfaced material, and Figure 3 is a diagrammatic view illustrating a step in a process of production.

It has been the custom to produce a diffused sheen effect in pyroxylin and other plastic materials in imitation of mother of pearl, by the use of various nacreous pigments. For example, a pearl essence consisting of the gleaming particles of fish-scales incorporated in a solution or liquid medium made with a cellulose base, has been commonly used for this purpose. Other cheaper, pearly pigments have also been tried with more or less success. Our preference is the gleaming, silvery variety of mercurous chloride.

The nacreous substance is preferably introduced into the thermoplastic material while in dope form and the flowable combination is spread on a suitable surface such as a film wheel, and preferably by scraper action according to the practice which prevails in the manufacture of cinematograph film. The resultant film, in thickness of about five thousandths of an inch and still retaining some excess of solvent residues, is wound around a drum, say about 9 inches in diameter and 47 inches long until a thickness of about one hundred and twenty five thousandths of an inch is reached. This is then sliced lengthwise of the drum to form a soft slab about 44 by 24 inches. These slabs or sheets which have a flat silvery appearance, but lacking in a wavy brilliant nacreous effect, are cut while still wet with solvents, into different shapes or sizes. These are arranged in various ways in a press or chase and welded together by heat and pressure into a solid block or cake. A peculiarly flowing treatment can be resorted to for securing an undulating or drift effect of high lustre and attractive pattern in this pearl. Sheets of about 125 thousandths of an inch in thickness are then sliced from this block of pearl thermoplastic and are partly dried to remove excess solvents. Two such sheets are then lightly cemented together with any of the usual thermoplastic cements and the 1/4 inch thick sheet is then cut up with a machine into dices or relatively small blocks measuring about 3/8 inch square by 1/4 inch thick.

Separately we convert another pyroxylin plastic mass this time on the rolls and remove it from the same in sheet form about 1/4 inch in thickness and of a softness consistency or residual solvent content approaching that of the pearl material with which it is to be assembled. This is non-pearl material, preferably opaque and colored black or other desired color. The two types of dice or relatively small blocks, i. e., pearly and non-pearly are then well blended together in any desired ratio (equal amounts are preferred)

and then placed in a chase. This is then subjected to heat and pressure for consolidation into a large block according to the usual practice. Sheets of any desired thickness are then cut, and if uneven blending appears, the sheets may be reversed, end and side-wise, restacked in the chase and again pressed whereby a more even figure generally results. Rods and other shapes may also be cut from the large block.

In this manner there are produced articles in which transparent or translucent masses having mother-of-pearl effects are incorporated in relatively opaque masses. Because of the mode of preparing the material, the nacreous pigments or particles of pearl essence which are flat light reflecting particles, are disposed so that their flat surfaces are in a large number of planes with the result that the material presents mother-of-pearl effects when cut in substantially any plane.

To secure a more even distribution of the two types of stock, it is sometimes preferable to remove the non-pearl plastic material from the converting rolls in a thickness of 1/8 inch and cementing a sheet to both sides of the 1/4 inch thick sheet of pearl, then cutting the resulting laminations to form dice or relatively small blocks 3/8 inch square by 1/2 inch thick as shown in Figure 3. These dimensions or ratios, of course, can be altered materially depending on the effect desired say for instance up to one inch in length, in breadth, and in thickness. It is also obvious from the above that any pearly material regardless of its configuration or color may be blended or consolidated with any other non-pearly thermoplastic colored or uncolored, pigmented or otherwise. A very pleasing entrancement effect is produced by mixing uncolored pearl with black thermoplastic as shown in Figures 1 and 2.

Here a highly decorative appearance is attained by contrasting the partially transparent pearl 4 with its variable sheen with the dark deep opaque material 5 with which it is irregularly combined. Within the pearl there will be for each position to the eye bright areas 6 in a relatively dull background 7, this whole combination being set deeply within the surrounding contrasting opaque 5. The bright areas 6 also in some positions occur immediately adjacent and in sharp contrast to the dull opaques as indicated for instance at 6', so that there are some sharp contrasts and at the same time at other points soft mergings between the pearl and the opaque, as indicated for instance at 8. The opaque 5 controls color and light reflections for varying depths of the semitranslucent material 4 over its edge underlay of opaque, and all of these effects are highly variable depending upon the movement of the article and the direction of lighting and the way it is presented to the eye. By coloring slightly the semitranslucent sheen material in harmony with the coloring of the opaque very pleasing shallow and deep effects are produced along the entire lines of contact of these materials. Instead of the dense opaque 5 transparent or semitransparent color effects may be used in this combination with the sheen carrying material. All of these effects are emphasized and made more brilliant and deep by the polishing of the surface of the thermoplastic material.

It is also obvious that fish-scale or any pigment having a nacreous character may be used, and that the pearl material itself may be made in a variety of manners.

Metallic powders such as the flaky socalled aluminum bronze may also be employed for making the imitation pearl. These powders are usually applied to the surfaces of thin sheets of thermoplastic cut from a block, which are then reassembled in a chase and reconsolidated into a cake.

Though we prefer to operate with pyroxylin plastics, our method is equally applicable to any thermoplastic material such as those made from cellulose acetate, cellulose ether or other cellulose derivatives.

We claim:

1. An article having decorative effects comprising masses of a translucent thermoplastic composition of substantial configuration having therein flat light reflecting particles, the flat surfaces of which are in a large number of planes, incorporated in a mass of differently colored substantially opaque thermoplastic material, the whole being in the form of an integral composition, which when cut in substantially any plane presents light reflecting areas simulating mother of pearl effects in said translucent composition.

2. An article of substantially cylindrical form made of a composition of matter having decorative effects comprising masses of a translucent thermoplastic composition of substantial configuration having therein flat light reflecting particles, the flat surfaces of which are in a large number of planes, incorporated in a mass of differently colored substantially opaque thermoplastic material, the cylindrical surfaces of which, when viewed at substantially any portion thereof presenting light reflecting areas simulating mother of pearl effects.

WILLIAM BOWKER.
JAMES F. WALSH.